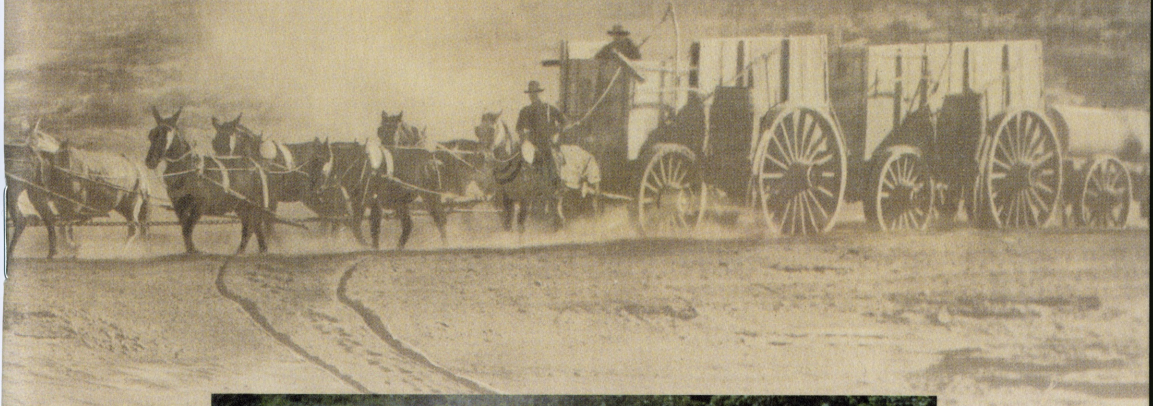
Resurrecting a Legend



The Return of the Borax Twenty Mule Team

By Preston Chiaro and Bobby Tanner

DEATH VALLEY '49ERS
NON-PROFIT CORP.

2001 Officers of Death Valley '49ers Inc.

Sue Conn, Bishop – *President*
Ken Graydon, Fallbrook – *1st Vice President*
Phee Graydon, Fallbrook – *2nd Vice President*
Eleanor Campbell, Kernville – *Secretary*
Barbara Reber, Newport Beach – *Treasurer*

Past Presidents

1949 – Andy W. Noon
*1950 – John Anson Ford**
*1951 – John Anson Ford**
*1952 – Ardis Manly Walker**
*1953 – Paul Palmer**
*1954 – George W. Savage**
*1955 – Dr. Thomas Clements**
1956 – Mrs. Willard (Peg) Lewis
*1957 – L. Burr Belden**
*1958 – Alex Krater**
*1959 – H. Harold Ihrig**
*1960 – Ralph Palmer Merritt**
1961 – George H. Sturtevant
*1962 – Charles A. Scholl**
*1963 – Ralph A. Fear**
*1964 – Arthur W. Walker**
1965 – Hugh C. Tolford
*1966 – Mrs. R. Hazel Henderson**
*1967 – Leo S. Moore**
*1968 – Edward P. Jones**
*1969 – J. Emil "Aim" Morhardt**
*1970 – Tom Mathew**
1971 – Paul W. DeDecker
1972 – Dean Lemon
1973 – William H. Newbro
*1974 – R. Chalmers Graham**
*1975 – George Koenig**
1976 – Robert Logsdon
*1977 – Palmer Long**
*1978 – Ross Dorsett**
1979 – Elmore Nelson
1980 – R. Jack Stoddard
1981 – Russ Johnson
1982 – Richard D. Crowe
1983 – Joe Lehman
*1984 – Merle E. Wilson***
1984 – Leslie B. DeMille
*1985 – Arthur D. Guy, Jr.**
*1986 – George Jansen**
*1987 – Mrs. Mary DeDecker**
1988 – Raymond J. Peter
1989 – Harry Tucker
1990 – Earl F. Schmidt
1991 – Dave Heffner
1992 – Perry Deters
1993 – Galen Hicks
1994 – Lee Crosby
1995 – Mike Nunn
1996 – Dee Dee Ruhlow
1997 – Rick Tullis
1998 – Lee Crosby
1999 – Ray Sisson
2000 – Edie Pool

* *Deceased*
** *Died during term of office*

Keepsake No. 41
Published for the 52nd Death Valley '49er Encampment
Death Valley, California
November 7 – 10, 2001

© Death Valley 49ers Inc., 2001
© U.S. Borax Inc., 2001

The Twenty Mule Team trots down Market Street to celebrate the opening of the Bay Bridge – San Francisco, California, circa 1938

Once Upon a Time

This is a story about bringing old legends back to life, and creating some new ones. The Borax Twenty Mule Team was not the first long-line freight hauling team in the American West, nor was it the biggest, but it was, without question, the most famous.

The Borax Twenty Mule Team rolled across the American landscape for almost 100 years, first hauling borax out of Death Valley, then as the centerpiece of a nationwide marketing campaign, and finally as an image moving across that new-fangled medium, television.

As the television series *Death Valley Days* faded to a faint memory, so did the legends surrounding this great icon of pioneering ingenuity. What also faded was the practical knowledge to make such a strange but beautiful contraption work. There were no training manuals to read, and no original teamsters to ask.

While there are many great stories about the original teams, it's our privilege to write about resurrecting the Twenty Mule Team more than a century after its maiden voyage. We gained a better understanding of the obstacles and triumphs that must have accompanied those first attempts, and a deeper appreciation for the people who made them. We're honored to share the lessons we learned along the way – and pleased to dedicate this book to the mule-skinners and miners who came before us, as well as to the members of the Death Valley '49ers, who help keep their stories alive.

Planetary Alignment

In early 1997, many believed the Twenty Mule Team was gone forever. The team's last public appearance had been a static exhibit at the 1983 Los Angeles County Fair. And the last time twenty mules hauled the wagons was in 1957 at a dedication ceremony for Borax's transition to open pit mining.

The wagons were parked at the mine, gathering dust in an old storage shed. No one at Borax really knew whether the wagons were still road-worthy and, more importantly, they knew nothing about how to hitch a team of mules to pull them. Nor did Borax have any good business reason to invest the time and money needed to put the wagons back on the road.

As a marketing tool, the Borax Twenty Mule Team had lost its edge. The company sold its consumer products division to Dial Corporation back in the 1980s, and was out of the advertising business. These days, the uses for borax are so diversified that the old detergent market is only a small part of the company's business, and not a growing market at that.

There were, however, other big changes afoot at Borax in 1997. After years of virtual isolation from the public, the company was looking for ways to reach out to local communities. In fact, Borax was getting ready to raise its public profile by opening a new visitor center – a place for people to learn more about modern mining and the role minerals play in their daily lives.

Shortly after the Borax Visitor Center opened, the company experienced a major failure of one of the walls of its gargantuan mine – an event that was drawing attention and resources at a staggering rate. With the imperative to keep ore supplied to the refinery – and refined borates supplied to customers around the world – who had time to look back at history?

Add to the mix the fact that veteran Borax President Ian White-Thomson was preparing to retire after 37 years of service. There were rumors that Ian's successor might not be a long-time Borax employee. Many old-timers at Borax thought this would be the end of an era, and that the history of Borax – including the old wagons – would be cast aside as the company reinvented itself in a more modern image. Little did anyone realize that the stage was being set to bring legends back to life.

The Twenty Mule Team hauls the first ceremonial load of ore out of Borax's new open pit mine – Boron, California, 1957

Borax's open pit mine, 40 years later – Boron, California, 1997

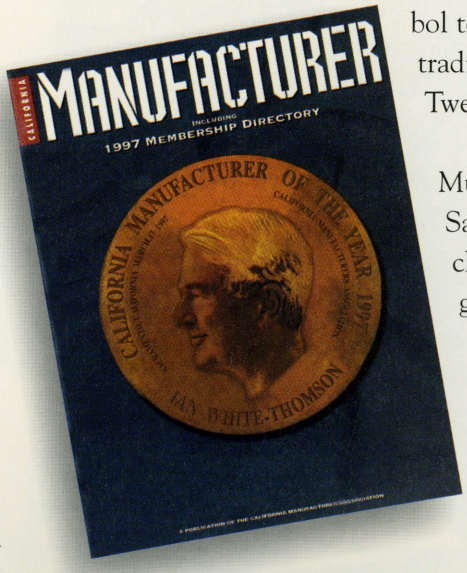
Out of the Shed

Each year the California Manufacturer's Association (CMA), one of the state's leading business organizations, recognizes an individual who has achieved distinction as an industry leader. The honoree is recognized by business and government leaders at a Gala held each spring at the Sacramento Convention Center – a black tie event affectionately known as the Manufacturer's Prom.

Although the award had typically gone to leaders of California's largest companies, the award for 1997 was from one of the smallest companies among CMA's membership. That honoree was none other than Ian White-Thomson, President of Borax. To celebrate, Borax wanted to highlight the company's ties to California – not only as one of the state's oldest enterprises, but also as a key player in keeping the world's seventh largest economy going strong.

Former Borax President Ian White-Thomson's being named California Manufacturer of the Year provided the first unlikely step toward putting the Twenty Mule Team back on the road

Plans were created for exhibits to showcase 125 years of accomplishment. Some focused on the myriad uses of borates – minerals essential to life and modern living. Others highlighted monster trucks and other gee-whiz aspects of modern mining. But Ian believed it was also important to honor his predecessors who had helped build the company into a global powerhouse. The perfect symbol to recognize the company's history and tradition of innovation was, of course, the Twenty Mule Team.



Grand visions arose of the Twenty Mule Team pulling up in front of the Sacramento Convention Center to the cheers of the assembled masses. These grand visions quickly ran headlong into the brick wall of reality. No one really knew if the wagons could withstand the rigors of the trip to Sacramento aboard flat bed trailers, let alone on the road. No one knew

where to find 20 mules up to the task of pulling the wagons, or mingling politely with guests in evening gowns and tuxedos. Needless to say, the fact that no one at Borax knew how to hitch the mules to the wagons didn't even come up.

More workable visions came into being: to display the Twenty Mule Team hitch in all its glory, but standing still. Borax's maintenance department got to work on the wagons. They would need a fresh coat of paint, some grease on the axles, and a few minor repairs; otherwise they were in good shape for the big event. Next came the challenge of getting the wagons to Sacramento. Borax called on long-time vendor Bobby Hatfield – a trucker with a knack for hauling unusual loads – to help figure out how to get the wagons to the Capitol.

Freshly painted fiberglass mules on their way to the CMA Gala

Then Borax needed to find mules with suitable party manners. Folks in the operations department recalled seeing life-size fiberglass replicas of horses and other animals. Fiberglass seemed like the perfect material for the faux mules, since it's made with substantial quantities of borax. Nevertheless, it would take a good deal of detective work to find someone who could make the requisite team of 20 (plus a spare)!

Borax finally located Bob Prewitt, faux animal maker, in Phelan, California. Bob did indeed have molds for mules and horses, and he assured Borax he could manufacture the 19 mules and two horses in time for the CMA Gala, even giving the mules different poses to heighten realism. Within a few weeks, the fiberglass animals began arriving at Borax's Boron site two at a time in the back of Bob Prewitt's pickup truck. Borax's maintenance department had already figured out how to paint the fiberglass mules to look like the real thing. Two by two, the herd began to grow.

Out of the Shed

Each year the California Manufacturer's Association (CMA), one of the state's leading business organizations, recognizes an individual who has achieved distinction as an industry leader. The honoree is recognized by business and government leaders at a Gala held each spring at the Sacramento Convention Center – a black tie event affectionately known as the Manufacturer's Prom.

Although the award had typically gone to leaders of California's largest companies, the award for 1997 was from one of the smallest companies among CMA's membership. That honoree was none other than Ian White-Thomson, President of Borax. To celebrate, Borax wanted to highlight the company's ties to California – not only as one of the state's oldest enterprises, but also as a key player in keeping the world's seventh largest economy going strong.

Former Borax President Ian White-Thomson's being named California Manufacturer of the Year provided the first unlikely step toward putting the Twenty Mule Team back on the road

Plans were created for exhibits to showcase 125 years of accomplishment. Some focused on the myriad uses of borates – minerals essential to life and modern living. Others highlighted monster trucks and other gee-whiz aspects of modern mining. But Ian believed it was also important to honor his predecessors who had helped build the company into a global powerhouse. The perfect symbol to recognize the company's history and tradition of innovation was, of course, the Twenty Mule Team.

Grand visions arose of the Twenty Mule Team pulling up in front of the Sacramento Convention Center to the cheers of the assembled masses. These grand visions quickly ran headlong into the brick wall of reality. No one really knew if the wagons could withstand the rigors of the trip to Sacramento aboard flat bed trailers, let alone on the road. No one knew

where to find 20 mules up to the task of pulling the wagons, or mingling politely with guests in evening gowns and tuxedos. Needless to say, the fact that no one at Borax knew how to hitch the mules to the wagons didn't even come up.

More workable visions came into being: to display the Twenty Mule Team hitch in all its glory, but standing still. Borax's maintenance department got to work on the wagons. They would need a fresh coat of paint, some grease on the axles, and a few minor repairs; otherwise they were in good shape for the big event. Next came the challenge of getting the wagons to Sacramento. Borax called on long-time vendor Bobby Hatfield – a trucker with a knack for hauling unusual loads – to help figure out how to get the wagons to the Capitol.

Freshly painted fiberglass mules on their way to the CMA Gala

Then Borax needed to find mules with suitable party manners. Folks in the operations department recalled seeing life-size fiberglass replicas of horses and other animals. Fiberglass seemed like the perfect material for the faux mules, since it's made with substantial quantities of borax. Nevertheless, it would take a good deal of detective work to find someone who could make the requisite team of 20 (plus a spare)!

Borax finally located Bob Prewitt, faux animal maker, in Phelan, California. Bob did indeed have molds for mules and horses, and he assured Borax he could manufacture the 19 mules and two horses in time for the CMA Gala, even giving the mules different poses to heighten realism. Within a few weeks, the fiberglass animals began arriving at Borax's Boron site two at a time in the back of Bob Prewitt's pickup truck. Borax's maintenance department had already figured out how to paint the fiberglass mules to look like the real thing. Two by two, the herd began to grow.

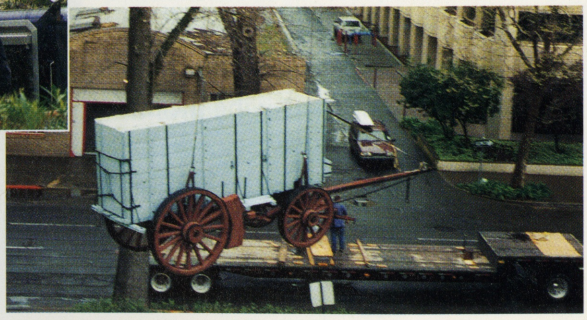
Some Assembly Required

The parts were gathered, but Borax still didn't know how the assembly worked. None of the original harness and tack from the 19th century had survived, but a set used in the filming of *Death Valley Days* was pulled out of cold storage. Unfortunately, no one on the payroll had any idea what to do with it.

Enter Borax's Sacramento lobbyist Bob Houston. Bob had a long-time association with Borax, and was helping the company with its plans for the CMA Gala. An avid horseman, Bob reintroduced Borax to the Tanner family of Bishop, California – mule and mule hitch experts whom he had come to know through annual pack trips through the Sierras.

Borax originally met Bob Tanner, Sr., through a static display of the Twenty Mule Team at the Los Angeles County Fair in the early 80s. For this venture, the company hooked up with Bobby Tanner, his son. Bobby Tanner grew up with mules – and with a fascination for the simple elegance of hitches that constituted cutting-edge technology in their day. Bobby signed on immediately to figure out the Twenty Mule Team hitch, and how to make it work with the fiberglass mules destined for Sacramento.

The parts and players had finally come together, just in time for the March 17, 1997, appearance at the CMA Gala. One of the most interesting preparations was getting the three wagons onto the second floor of the Sacramento Convention Center. Not even the water wagon would fit onto the freight elevator, so each had to be lifted by crane. With the blessing of the church next door to the Convention Center, the church parking lot was transformed into the launching pad for the wagons. Each wagon was slung with



Wagons were hoisted by crane to create the tableau

Excerpts from the Governor's Address:

"Few companies can boast of being more proudly interwined in California's cultural and descriptive history than Borax. From the floor of the dry lakebed in Death Valley, they have worked virtual magic. They have brought us a stirring saga of California industry. The images of its beginnings are vivid...we think of brave pioneers who flooded into the high desert of California and helped tame and settle the land. We think of the Harmony Plant. And now [Boron] the state's largest open pit mine; and, of course, we think of the famous Twenty Mule Teams that became the most enduring and, in many ways, endearing symbol of the West at work.

"If you have not yet seen it, I commend to your attention – though if you've been in that part of the building I don't know how you could miss it – a remarkable exhibit. They have assembled the original 114-year-old Twenty Mule Team wagons. You can pet the mules – they won't bite. And I ask you who, unless you're quite young, can forget the bugle call that began one of television's most memorable programs, Death Valley Days. Of course, U.S. Borax was the sponsor, and as those of you who are mature will surely recall, the gentleman who hosted that weekly event went on to enjoy a pretty fair career in public life. So, Ian, if you ever decide to revive that show, and are looking for a new host..."

harnesses fabricated by Borax maintenance crews, lifted by crane over the church roof, and wheeled into place by hand.

Because the Convention Center in Sacramento is usually booked solid, Borax had only a short window of time to set up its exhibits. This meant working through the night to get the mules into the freight elevators two by two and moved into position. Then it was up to Bobby Tanner to hitch the team. Despite the tight time schedule, and the fact that working with fake livestock was a new experience, he quickly perfected the hitch.

With a few touch-ups on the mule paint jobs, the Twenty Mule Team was reborn just in time for the first CMA Gala guests to arrive. The exhibit was a hit! Then-Governor Pete Wilson was so impressed that he mentioned the Twenty Mule Team in his remarks introducing Ian White-Thomson as California Manufacturer of the Year.

Breaking the set was essentially the same process as installation, except faster, since Borax needed to vacate the center for another show. After the wagons were safely returned to Boron and the fiberglass mules stabled, everyone breathed a sigh of relief and basked in the glow of success. The Twenty Mule Team, without a doubt, had stolen the show in Sacramento.

More than 1,500 Borax loyalists helped open the Visitor Center and welcome the Twenty Mule Team home – Boron Operations, October 1997

New Stomping Grounds

While the CMA Gala was in the works, work was also underway on Borax's new Visitor Center at the company's Boron Operations. The focus of the Visitor Center was on modern mining rather than company history – and an associated goal was to complement rather than compete with the Twenty Mule Team Museum in the town of Boron. Despite this focus, one of the planned exhibits was the only intact and (hopefully) functional set of the five original sets of Twenty Mule Team wagons. While the original plan was to display the wagons by themselves, the Visitor Center was the perfect place to store the new fiberglass mules as well.

The Borax Visitor Center was completed in October 1997, just in time for the 125th anniversary of the company's founding. Bobby Tanner drove from Bishop to hitch up the fiberglass mules for another special appearance. Borax threw itself a birthday party to open the Visitor Center, and invited employees, retirees, and their families to the bash.

About 1,500 people came to Boron that day, and on the next, the Visitor Center was officially opened to the public. Insiders and first-timers alike were fascinated by the re-creation of the Twenty Mule Team. The mules and wagons had found a new home, and seemed destined to live happily ever after at the Borax Visitor Center.

That destiny was interrupted only six months later. During this time, behind the scenes, a secret plan was being devised. At the start of 1998, Preston Chiaro, Borax's Executive Vice President of Operations, had been told that he would succeed Ian White-Thomson as the next President, beginning on January 1, 1999. Although Ian had been honored at the CMA Gala, Preston and the other executives decided that a special, more personal tribute was called for.

The executive team held a brainstorming session to come up with options. Scott Griffin, then General Manager of Boron Operations, suggested something quite outlandish – bringing the wagons out of retirement for the town's annual Twenty Mule Team Days Parade. Mine tractors could pull the wagons in a salute to Ian's career at Borax. But the brains didn't stop storming there. Why not replace the tractor with twenty mules? Everyone laughed, but a seed was planted.

A seasoned team and working wagons ride in the 1917 Rose Parade – Pasadena, California

New Alliances

About the same time in a distant city, other people were having strikingly similar thoughts – among them, Dick Ratliff, President of the Pasadena Tournament of Roses Committee. As President, one of Dick's jobs was to select a theme for the 1999 Tournament of Roses Parade. He chose "Echoes of the Century" for this last parade of the century and

millennium. Dick would also need an appropriate conveyance for his family's ride in this landmark parade.

Also thinking big was Phyllis Hix, Equestrian Committee member for the Tournament of Roses. Phyllis had heard rumors of Twenty Mule Team sightings – first in Sacramento, then in Boron. Her outlandish idea was to "borrow" the wagons to carry the President and his family in the 1999 Rose Parade. So it came to pass that one day in the late Spring of 1998, Borax got a call from the wonderfully enthusiastic Ms. Hix, and her idea became a proposal.

Borax's initial reaction was astonishment. The last time the Twenty Mule Team had appeared in a Rose Parade was 1917, and that was when the teams were working regularly to promote the company's consumer products. Back then, there were plenty of trained mules and experienced drivers on hand, and the wagons were in good running condition. That was also the pre-liability lawsuit era, when a long string of animals was still relatively commonplace. But the truly astonishing thing was how closely this idea meshed with the notion of bringing the wagons out of retirement to honor Ian.

Borax told Phyllis that her idea was probably unworkable, but not unthinkable. The company had already called Bobby Tanner to see if he could drive the Twenty Mule Team in the Boron parade. Now they called to raise the stakes.

Bobby's immediate reaction was acceptance. He had grown up driving mules, and even worked side by side with Henry Olivas, a teamster who drove the Twenty Mule Team in the late 1940s. Bobby understood the fundamental theory behind the twenty-mule hitch, and even had a chance to test that theory in the early 1980s. During Bishop's world-renowned Mule Days, Bobby drove a twenty-mule hitch in a demonstration event. He had no jerkline, and there were no original wagons nor chain-jumping involved – but the demonstration whetted his curiosity.

Today, Bobby admits to an important distinction that no one noticed at the time. In accepting the invitation to drive the team, he didn't say he knew what he was doing – he said that he could do it. However, it was one thing to perform for a home-town parade and an audience of Borax friends and family. It was quite another to do it for the world's biggest parade with millions of people watching. But the answer remained affirmative and the partnership was cemented.

Testing The Theory

Now that a commitment was made, questions began in earnest. On Borax's side, they were mostly about the wagons. What happens if they break down with millions of people watching? Are we running the risk of destroying an irreplaceable historic treasure? There were also some questions about the mules. What happens if the mules run amok? How deep are Bobby Tanner's pockets?

Bobby Tanner and his team had questions, too. How do you adapt a conveyance built for wide-open spaces to the orderly grid of modern pavement? Would mules docile enough to deal with the crowds work hard enough to pull the wagons? How, exactly, do you swing a 180-foot contraption around a 90-degree turn at full speed? The last question would prove to be the most enduring.

The Day of Reckoning

The Mojave Desert is the site of many remarkable tests. While many would say Chuck Yeager breaking the sound barrier is the most memorable local achievement, the people who gathered for the first dry run of the Twenty Mule Team would probably disagree.

The test was held on the backroads of Borax's Boron Operations in August of 1998. Although the original pioneers were smart enough not to run the teams in the height of summer, our team was not. The temperature reached 118 degrees by late morning – which gave everyone a great excuse to be sweating bullets. Century-old wagons were hitched to a modern skip-loader and pulled onto a dirt road not far from the original haul route. Bobby Tanner and his crew of muleskinners trucked in 20 rookie mules and several horses from Bishop as well as the tack needed to hitch wagons to mules. The first attempt to resuscitate the Twenty Mule Team was underway.

In addition to the wagon crew, mules and muleskinners, some special guests were on hand for the big event. Dick Ratliff brought his family along for the trial, along with his highest hopes. Phyllis Hix was there, too, to see if her idea would fly. Tensions rose as the skip loader was replaced with an 100-foot chain. Harnesses, single-trees, and double-trees were unloaded and positioned. Mules were unloaded, two-by-two, each pair matched by appearance and disposition to their special role in the team.

(top) Modern-day muleskinner Bobby Tanner makes his first attempt to recreate the hitch – Boron Operations, 1998

(left) The last intact set of wagons is pulled out for the first test run – Boron Operations, 1998

Victory is ours – Boron Operations, 1998

And then it was time to give it a try. With a minimal complement of passengers, the Twenty Mule Team swung into action. It was instant poetry. The sight of the team and wagons moving across the desert landscape meant something different to everyone there – an icon brought to life, a hope turned into a promise, a crazy idea transformed into a great one – but the common feeling was a profound sense of triumph.

Johnnie O'Keefe – the last original Twenty Mule Team driver, circa 1940s

Original Twenty Mule Team wagon wheels being constructed in Bishop, California, Bobby Tanner's home town

One Small Trot for Mulekind

Fresh from success in Boron, wagons, mules and crews scattered and the real work began. There were only two months to get the wagons in shape and the team in step for their debut at the Boron Twenty Mule Team Days Parade.

Sun-baked for decades, the wagons required more than 25 gallons of paint to refresh and protect the old dry wood. But that was only on the surface. The Borax maintenance crew, led by Rick Bohl, went over the wagons inch by inch, replacing rotted wood and rusted nuts and bolts, refurbishing brakes, and even building cushioned seats in the two ore wagons for the guests of honor.

Weighting the wagons was another imperative. The original wagons were built to grind through rocks and sand, to climb mountains and cross deserts – not to roll on pavement. After discovering that the existing braking system was no match for twenty mules in motion, the crew put steel plates, bales of hay and even loaded the water wagon with barley to provide enough drag. All of the wagons had a few worn-out pieces of wood to be replaced. The water wagon also needed new wheels. Borax called in wagon master Richard Newkirk from Arizona, who worked with Amish wheelwrights to recreate the original technology.

Borax maintenance team member Oney Carrell put it best when he likened the care lavished on the wagons to "restoring the Mona Lisa" – a quote that was picked up by a *Wall Street Journal* reporter, one of many journalists fascinated by the effort to put the Twenty Mule Team back on the road.

Of Mules and Men

Hundreds of miles to the north, Bobby Tanner was working to put together the right mix of people and mules. Humans were chosen for their expertise – including Bonnie Pritchard, Dan Dean, Owen Topping, Tracy Harris, Ottie Bear and large animal vet Dr. David Fly as the riders; Gary McCoy and Freddy Valentino as the brakemen; and Al Chinn, Aaron Dickinson, Olaf Medrud, Norm Ostergren and Harold Wells as the ground crew.

Mules were chosen primarily for their temperament. They had to be

people-friendly, not kickers or biters – but not so gentle they would be lazy in the traces. Bobby also selected mules of matching color. Although not a criteria for the original working teams, he tried to be true to the look of the promotional teams that followed. Only one problem – it's hard to tell what color those mules were by looking at black and white photos.

The biggest challenge for the muleskinners was traveling back to the 1880s to recreate a lost art. Since people don't write down instructions for things they do every day, the best approach was to understand what the original muleskinners were thinking. All technology is born as a way to solve a problem. So to understand the Twenty Mule Team technology, they had to understand what obstacles it was developed to overcome. Bobby and his crew combed historical archives and thousands of photos for clues, but they also learned through trial and error.

The story that the photos told was that in the 1800s, mules were a vital mode of transportation. Pioneers brought hitches used during the Civil War for hauling artillery and supplies with them as they settled in the West. These hitches were adapted to the terrain – instead of winding, hilly roads, westerners faced sweeping vistas, allowing expansion of the basic principles of the hitch to accommodate longer strings of animals.

But photos also provoked questions – why were some teams all mules, and others mixed stock? The answer may be that mule-only teams made sense for the long haul out of Death Valley – the working teams were mules bred from wild desert horses, tough enough to withstand the job and the environment. When teams traveled shorter routes, horses were used throughout the string, not just as wheelers, or the strongest animals positioned closest to the wagons.

Ernie Kinney, an expert in old freighters, provided more insight. According to Ernie, in the old days muleskinners trained mules by hitching them up and leaving them in their traces for two to three days until they calmed down enough to accept handling. These mules were ornery creatures, so it was partly a safety measure not to hitch and unhitch them often. Equally important, this method provided a clue about the hitch design itself. If the mules had enough room not to get tangled in harness, learning how to work in the hitch would come naturally.

Above all else, the muleskinners discovered that the Twenty Mule Team hitch was designed for simple functionality. In a world that tends

to complicate everything, the real challenge was to stop trying to force things to work, and instead, let things work by themselves. In fact, Bobby says he learned as much from the mules as they learned from him.

But learning how to drive the team in the desert wasn't the entire assignment. The muleskinners had to adapt old technology to modern reality: paved streets, lined with people and rife with potential distractions, from helicopters to fireworks. What better place to condition the mules to accept unusual sites and sounds than a refinery operation? So as a final preparation for their first public appearance, Bobby drove the Twenty Mule Team through the front gates and around the Borax plant in Boron.

While it was good practice for the team, it was also an unforgettable experience for the 800 people who keep the mining and refining operation running. The juxtaposition of old technology and new made for a strange and wonderful sight, and one that most of the people at Boron that day will never forget.

A mix of mules and horses were used for short hauls
– Daggett, California, 1882

Parading through Boron

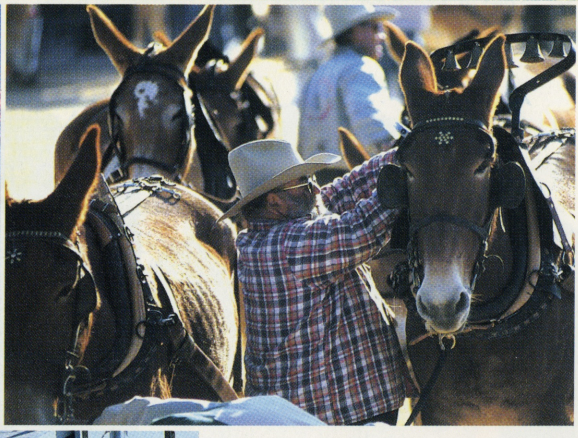
The mule team's impromptu operations tour also made for great advertising. Thousands of people came from miles around to see the legend come to life in the Boron Twenty Mule Team Days Parade in October, 1998. In fact, so many people showed up that the Kern County Sheriff's Department couldn't keep them off the parade route.

A contingent of Tournament of Roses officials was also on hand to watch the team work. It had become apparent through the many phone calls and meetings between Borax, the muleskinners and the Tournament of Roses people that the Rose Parade runs on tight measurements, not rough estimates. Questions ranged from how many seconds it would take the team to start moving to how many inches it would take to bring the team to a full stop. So while the muleskinners were busy hitching up the team, the Rose Parade people were busy with their yardsticks, speedometers and stopwatches.

Ian White-Thomson and his wife Barbara joined honorary Grand Marshal Preston Chiaro in the front wagon for the big event. Seats in the second wagon were filled with children of Boron Operations employees, watched over by Scott Griffin's wife, Alene. Although the entire ride would be less than ten miles, there was much more riding on the journey. Would the mules balk at the crowds? Would the wagons be blown off course by the fierce desert winds blasting the parade route? Would the team get through the turn?

The last question proved the most problematic. Rounding the corner onto Twenty Mule Team Road, lead rider Bonnie Pritchard was greeted by a wildly cheering crowd – a welcome sight, except for the fact that they were wildly cheering while sitting directly in the path of the mule team. Bobby Tanner stopped the team mid-turn and the Sheriff's department moved the crowds back. The mules completed the turn perfectly.

But an anxious Tournament of Roses crew saw only that the team stopped during its right-hand turn – something that might threaten the clockwork precision of the Rose Parade. Not surprisingly for a group that seems to control even the weather in Pasadena on New Year's Day, the question ripened into a legend of its own: The Twenty Mule Team could only turn left, not right. This was quite a concern for the Tournament of Roses officials. The first turn in the Rose Parade – the one in front of



all the TV cameras – was a right-hand turn.

For everyone else gathered in Boron, it was a day to remember for a lifetime. The Twenty Mule Team stopped the show, successfully ran the course, and did their home team proud.

The fateful right-hand turn – Boron, California, 1998

(l to r) Preston Chiaro, Grand Marshal, Barbara and Ian White-Thompson – Boron Twenty Mule Team Days Parade, 1998

Parading through Bishop

There was no time to rest after Boron's Twenty Mule Team Days – in fact the heat was on with a countdown of just over two months until the Rose Parade. Bobby Tanner borrowed the wagons and took the mule team onto the streets of Bishop, literally stopping traffic wherever they went. The mules perfected the art of pulling wagons on pavement, with the help of a sticky substance called borium applied to their shoes.

Another opportunity arose in the form of the Bishop Christmas Parade. And with it, another important lesson was learned. Preston joined Bobby's team for the event, riding in front of the team to practice for the Rose Parade. By luck of the draw, the Twenty Mule Team was positioned directly behind a drill team squad – twenty young girls waving metallic banners dubbed "twirlies." Preston's horse developed an immediate distrust of twirlies. Given the choice between approaching the twirlies and getting run over by the Twenty Mule Team, the horse opted for the latter. The Twenty Mule Team briefly became a team of twenty-one, but order and dignity were shortly restored, and the parade continued apace.

After the twirly incident, practice continued at a fever pitch. There were only a few days before the wagons had to be shipped to Pasadena to be put on display for the week leading up to the Rose Parade.

On one auspicious occasion, Bobby and the muleskinners found themselves stuck in a ditch in a remote field in Bishop. At first, it seemed there was something wrong with the wagons. In fact, everyone had assumed that the wagons didn't steer very well because the wheels were out of round. But with no other options, the muleskinners tinkered with the hitch – attaching the mule team to the wagon tongue rather than the pull chain – and another mystery was solved.

Once again, the muleskinners stumbled onto the abject functionality of the original design. Rather than blaming the equipment they found the answer by trying a simpler approach. With a slight adjustment, it became clear that the hitch worked by marshaling the four animals closest to the wagon to steer, and the 16 mules in front to pull. In short, the original wagon masters and muleskinners figured out rear-wheel steering more than a century ago, and the modern crew figured it out again just in time.

Entering the Rose Zone

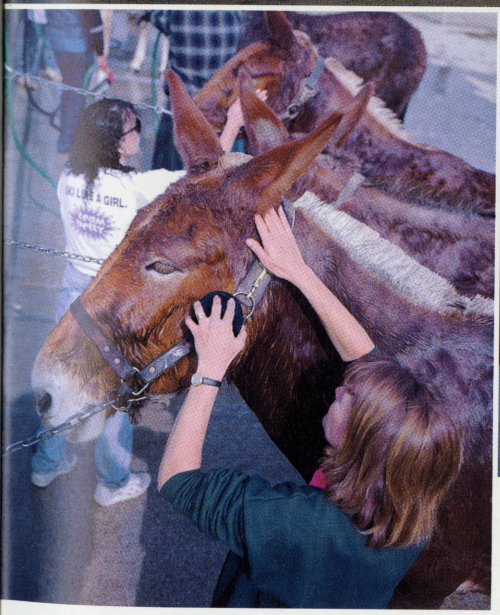
If the path to resurrecting the Twenty Mule Team involved releasing control and letting form follow function, that path took a 180-degree turn when Borax and the muleskinners entered the Rose Zone.

The wagons were first on the scene – hauled from Bishop to stand display in the huge decorating tents erected around the Pasadena Rose Bowl. Crowds streamed past to learn about the wagons – many asking why we hadn't started decorating the wagons with flowers. They hadn't quite grasped the fact that covering an irreplaceable treasure with glue and poppy seeds wasn't a great idea. Rose Parade inspection crews in spotless white suits spent hours kicking tires and wondering aloud about the risk and whether the team could make the turn. Television broadcasters were ushered in by their handlers to get briefed on Twenty Mule Team history. Borax staffers and muleskinners stood by to guard the wagons from the glue squad and to field the questions.

Next to arrive were the mules, trucked in from Bishop and stabled at the Los Angeles Equestrian Center in Burbank, California. The time had come for mule makeovers. Now the ostensible reason for giving each of the mules and horses a bath, pedicure and haircut was to get the animals looking good for the parade. But there was actually more going on. There's nothing like scrubbing down a thousand-pound equine to relieve anxiety, and that was just what the doctor ordered for the crew members who had been working toward this event since August. People were having fun with the mules and the mules seemed to be having fun with the people. Polishing the parade tack proved very therapeutic for the entire crew as well.

Freshly scrubbed mules were stabled and crews from Bishop and Borax met for a subdued New Year's Eve dinner in Burbank. It's hard to party like it's 1999 when your stomach is in knots and you know you have to wake up at 2:00 a.m. Nevertheless, no one would have traded places for a more normal New Year's Eve.

In the first dark hours of 1999, Bobby Hatfield, Rick Bohl and the wagon crew found themselves shepherding the wagons inch by inch onto the parade route in a strange Rose Parade ritual called "bunching." Bunching is the term used to describe the choreography it takes to move all the massive floats and conveyances into side streets that feed onto the parade route. All told, it took five hours to move the wagons about as many miles.



(above) In one of the many synchronicities of the entire event, one of the crew members for the parade was none other than Frank Smith, grandson of Borax founder Francis Marion Smith

On the other side of town, still in the pitch dark, mules were being loaded into trucks for the journey to Pasadena. Although it felt like the New Year's Day would never dawn, the team managed to keep busy hitching mules, festooning them with floral arrangements, and double-checking everything twice. The only challenges that arose involved breakfast – there was a scramble to get the riders and crews fed when it became apparent that the Tournament of Roses staff wouldn't allow food to be brought to them from the official Breakfast Tent. Another scramble involved keeping the mules and horses from breakfasting on their bridle decorations – also a strictly forbidden activity.

The Big Easy

At long last, five months of preparation were finished, and the team broke into motion for their last ride in the 1999 Rose Parade. An enormous cry went up in the first leg of the parade route when Borax employees caught sight of their magnificent team. They had traveled from Boron, Wilmington and Valencia, California, to see history being made. Seated on the other side of the route was a block of University of Wisconsin fans. Perhaps they mistook Borax fans waving their red handkerchiefs for a sign of support for Wisconsin's football team – playing in the Rose Bowl that afternoon – but the two factions provided a stereo ovation that got the ride off to a great start.

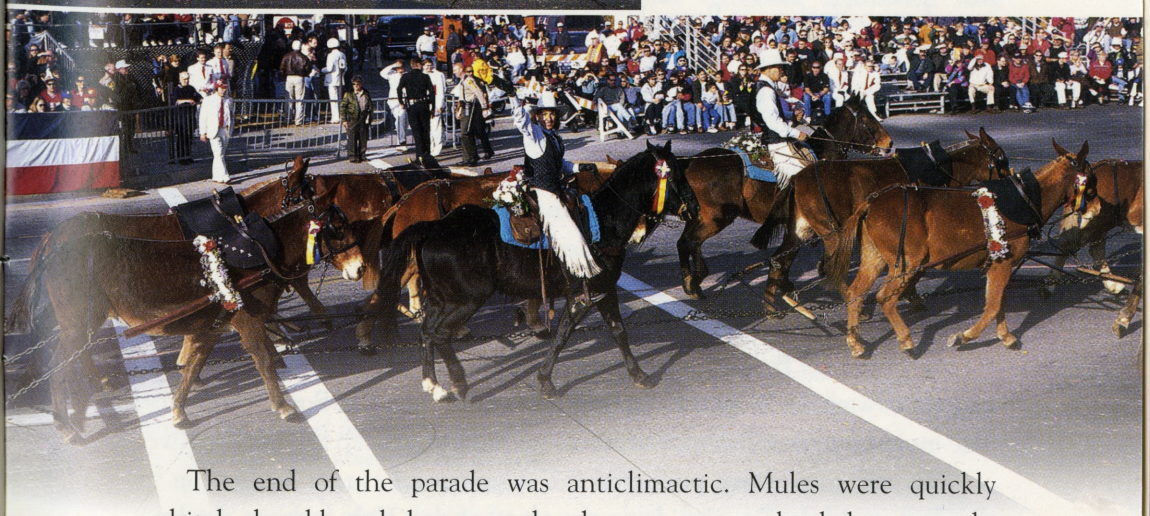
But the cheering crowd fell silent when the Twenty Mule Team stopped dead in front of the official judges' stand. What had gone wrong? Television crews quickly cut to commercial breaks. What they didn't know is that it was a planned stop to pick up Dick Ratliff. Mules, wagons and riders were in perfect synchronicity as they stopped to bring the president of the Tournament of Roses aboard. With the full contingent in place, the next challenge was making the right-hand turn while people around the world watched, and the Tournament of Roses organization held its collective breath.

The lead mules described a perfect arc down the middle of the route. The swing teams followed in precise harmony. The next six mules jumped the chain flawlessly, bringing the wheelers and the wagons safely around the curve. It was the seamless execution of a long-forgotten art. And while it did constitute great entertainment, the true victory was that a team of people and animals had managed to rediscover one of civilization's most awesome technological feats.

After the turn and a short downhill jog, Bonnie Pritchard summed up the rest of the parade for everyone, "It was a walk in the park."

The resurrection of the Twenty Mule Team was a success. Did everyone watching feel the same way we did? Probably not. One of the great ironies of the Rose Parade is that only one television station actually filmed the team throughout the entire turn – so much for modern technology. Perhaps successfully completing the Rose Parade wasn't the point of the whole process. For the muleskinners and the people of Borax, the opportunity to unlock the secrets of the Twenty Mule Team and bring the legend back to life was enough – the parade just gave us a good excuse!

(above) Bonnie Pritchard takes a victory lap after a perfect parade performance



The end of the parade was anticlimactic. Mules were quickly unhitched and boarded onto trucks, the wagons were loaded onto trucks for the journey back to Boron, and people dispersed to catch the Rose Bowl or catch up on sleep. The resurrection of the Twenty Mule Team was a success, but the last ride was over.

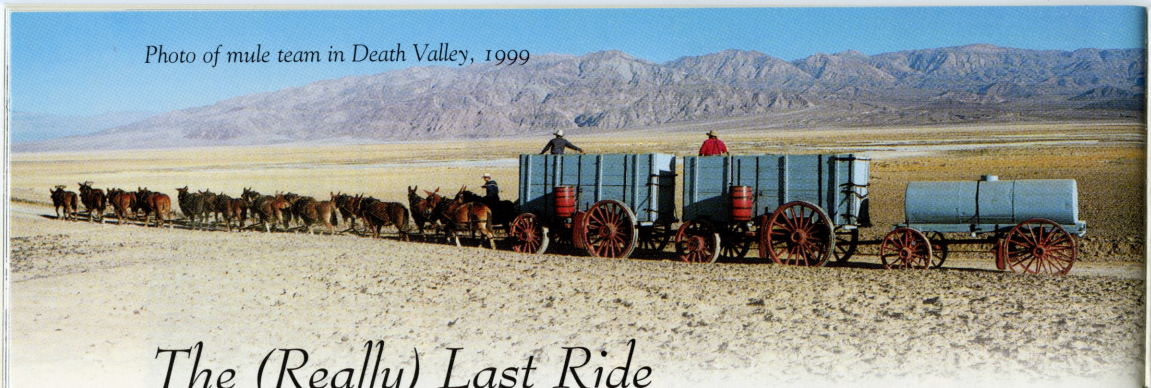


Photo of mule team in Death Valley, 1999

The (Really) Last Ride

Friendships forged throughout 1998 carried into the new year, and a Twenty Mule Team reunion in Bishop gave everyone a chance to relive good memories. Everyone marveled at the unique chain of events that brought the group together, but no one guessed what lay ahead.

About a year after the first test run at Boron, Preston got another auspicious telephone call, this time, from Sue Conn, Death Valley '49ers President. Sue wanted to know if Borax would consider hauling the wagons out for one more ride. The '49ers' 50th encampment was coming up in October of 1999. The last time the Twenty Mule Team made an appearance there was in 1949. Bobby Tanner had already agreed to bring mules and riders. It was almost impossible not to say "yes."

There could not have been a warmer reception for the Twenty Mule Team than the one they got from the Death Valley '49ers. The team lined up for a rededication of Death Valley National Park, rode in a parade, and gave demonstrations at Borax Harmony Works, the company's birthplace. Seeing the team in its natural setting made the whole trip worthwhile.

There may have been a bigger crowd at the Rose Parade, but their appearances in smaller towns – Boron, Bishop and Death Valley – had a bigger impact. To the people who helped transform an idea into reality – and to those who showed up to cheer us on – thank you. The wagons are back home at the Borax Visitor Center. The mules are back in Bishop. But the memory and the knowledge of the Twenty Mule Team lives on.

Memories aside, one question remains: what happens next? The '49ers are working with Bobby Tanner and other local agencies to build a travelling set of wagons. Wagon blueprints are still on hand in Borax's archives. The muleskinners still demonstrate 20-up hitches to keep the lost art alive.

No one could have predicted the sequence of events leading up to the Twenty Mule Team's ride at the close of the 20th century. And no one can predict what will happen in the 21st. So stay tuned for the next chapter of the Twenty Mule Team legend. Who knows ... you may be part of the story.

Original Twenty Mule Team Statistics

- *Chosen for their intelligence, the first two mules in the train were called "leaders." The next ten mules were known as the "swing team." Following the swing team came pairs called the "eights," "sixes," and "pointers." These pairs were trained to leap the chain to pull the wagons around a corner. The animals next to the wagons were called "wheelers," and were typically the largest and strongest.*

- *The mule team was 120 feet long in harness; the entire conveyance stretched 180 feet.*

- *The human part of the team was made up of two men. The muleskinner – also called the driver or teamster – harnessed and drove the team, and served as veterinarian and mechanic. The swamper managed the brakes, cooked and washed dishes.*

- *Muleskinners earned from $100 to $120 per month – very high wages for the time.*

- *The muleskinner wielded a whip and a 22-foot lash, but his primary tool was the jerkline, a rope that ran the length of the team. A steady pull on the jerkline turned the team left; a series of jerks sent them right.*

- *Special ore wagons were built in Mojave for $900 each. Empty, each wagon weighed 7,800 pounds, and was strong enough to haul 11 tons of borax.*

- *Iron rims encased seven-foot-high rear wheels and five-foot front wheels.*

- *Split oak hubs and solid steel axle-trees supported the wagons, with beds that stood 16 feet long, four feet wide and six feet deep.*

- *Each team pulled two ore wagons and a 1,200-gallon iron water tank behind them. The wagons, ore and water combined to make a total load of 36 1/2 tons for the mules to haul.*

- *The one-way trip from Death Valley to the nearest railhead in Mojave was 165 miles and took 10 days.*

- *The route started 190 feet below sea level and climbed to an elevation of nearly 4,000 feet before it was over.*

- *A loaded team traveled an average of 17 miles per day.*

- *Between 1883 and 1888, the Twenty Mule Teams hauled more than 15 million pounds of borax out of Death Valley. During that time, not an animal nor wagon was lost.*

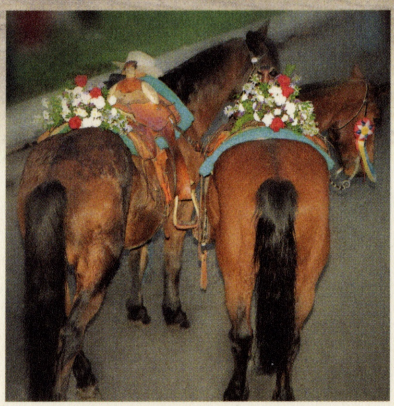
- *After the Twenty Mule Teams retired from service hauling ore, the wagons and mules were used to promote sales of Borax products and for ceremonial appearances.*

- *The Twenty Mule Team's appearance in the 1999 Rose Parade marked its first return since its original ride in the 1917 Rose Parade, where it won first place.*

- *Other ceremonial appearances have included:*

  - *St. Louis World's Fair – 1904*
  - *President Woodrow Wilson's Inauguration – 1917*
  - *Featured as a sound effect in the radio program, "Death Valley Days" – 1930*
  - *San Francisco Bay Bridge Dedication, 1938*
  - *A 40-city tour to promote Metro-Goldwyn Mayer's movie, "Twenty Mule Team" – 1940*
  - *Featured in the opening of television program "Death Valley Days" – 1951 to 1969*

- *Since the 1999 Rose Parade, the wagons have been on permanent display at the Borax Visitor Center in Boron, California. This is the site of the company's principal mine – and California's largest.*



The End

DEATH VALLEY '49ERS
NON-PROFIT CORP.